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No. XIV.

*Remarks on the use of the Maxillæ in Coleopterous Insects, with an Account of two Species of the Family Telephoridæ, and of three of the Family Mordellidæ, which ought to be the Type of two distinct Genera. By N. M. Hentz.*

THE maxillæ in most coleopterous insects may not have as much influence in the masticating of the food as has been supposed. Latreille long ago has shown that Fabricius's characters of his *Eleutherata* and *Synistata* were erroneous, since in all the *grinding* insects the maxillæ are attached to or connected with the tongue. After mature consideration, I have even come to the conclusion that the maxillæ, in many cases, must be considered only as appendages to the tongue, and that their use, then, is similar to that of this last organ; that is, to assist in the deglutition of food, while they seldom serve to grind or lacerate, excepting in the *Melolonthidæ*, *Rutelidæ*, and a few more, where there seems to be a departure from their primary use. De Geer, quoted by Kirby and Spence, long ago observed in *Leptura quadrifasciata* that the maxillæ were terminated by soft appendages, fringed with hair. There the chief use of the maxillæ could not be mistaken; they are evidently employed to penetrate into the corolla of flowers, somewhat in the same manner as the antlia of Lepidopterous insects. We are already acquainted with the genus *Nemognatha*, established by Illiger, where the maxillæ can hardly have any power in masticating or lacera-

ting the food. I have been fortunate enough to discover a considerable number of insects, in which the configuration of that part of the mouth is such as to corroborate the idea expressed in the sentence heading these remarks.

The first to be mentioned seems to be the *Cantharis marginata* of Fabricius, though the marking of the elytra differs in most varieties from the descriptions of that species. In this insect, the maxillæ, if examined after desiccation, offer only one lobe, which is cleft or bifid. See Fig. I. *b*. But before it is dried, if the abdomen be pressed gradually, and then the thorax, there issues from the cleft of the lobe of the maxilla a soft, elastic, subconic body, of more than half its whole length, and extending beyond the palpi. Another body of the same nature issues nearly at a right angle from the base of the first, which is directed forward. This projection is about half the length of the first, and would seem to issue from, or possibly to constitute the lower lobe. Both are covered with short hairs. See Fig. I. *e*. These bodies, which the insect can protrude at will, can extend into the corollæ of umbelliferous and other small flowers, and are used to collect nourishment. The next insect is the *Cantharis bimaculata*, F. The anomalous characteristics of the preceding exist in this in a more conspicuous degree. When the abdomen and thorax, still in a recent state, are pressed, there issues from each maxilla a soft tapering body covered with fine hairs. It is capable of great extension, as it may reach farther than the middle of the antennæ, being then more than twice as long as the maxilla itself. See Fig. II. *b. c*. These two insects are evidently congeneric and even bear great affinity to each other. A superficial observer might take one for the other. They would rather belong to *Malthinus* than to *Telephorus*, on account of the brevity of the elytra in relation to the abdomen, but I have been induced by several reasons to propose that these should constitute a new genus, which I will thus define:—

## FAMILY LAMPYRIDES.

## GENUS CHAULIOGNATHUS.

*Cantharis*, Linn. *Telephorus*, Oliv. *Malthinus*, Lat.

Antennæ nearly as long as the elytra; mandibles arcuated, entire, apex acute; maxillæ with the upper lobe, at least, extensible during life; palpi with their last joint larger, subsecuriform; body soft; elytra shorter than the abdomen; head generally attenuated behind.

I. *Chauliognathus marginatus*.

Testaceous; antennæ and a bifurcated band on the vertex black; a longitudinal band on the thorax, and an abbreviated one near the apex of the elytra black.

Length (in a dried state) from 2-5ths to nearly half an inch.

Inhabits North Carolina from May till the end of July.

*Description*.—Head testaceous; a line on the vertex which bifurcates towards the eyes black; mandibles piceous at tip; palpi piceous; antennæ black, first three joints rufous underneath; thorax testaceous, subquadrate, not transverse, margined with a longitudinal band black; elytra testaceous, narrowed at tip, with an abbreviated band near the apex black; a slightly elevated line near the suture diverging beyond the middle towards the humerus, where it is obsolete; beneath testaceous; postpectus darker; venter testaceous, segments black at base; thighs pale ferruginous, black at tip; tibiæ piceous, slightly ferruginous at base; tarsi piceous.

Var.  $\alpha$ . Elytral band nearly reaching the base, where it bifurcates, inner bifurcation longest; band of the thorax interrupted in two places.

Var.  $\beta$ . Elytra black; suture, margin and humerus testaceous. This is possibly the *Cantharis marginata*. Fab. Eleut. I. p. 298.

Var.  $\gamma$ . Elytra testaceous, immaculate.

*Observations.* This insect very much resembles the following, but may be distinguished by its narrow thorax, the marking of the head and feet, its size, the time when it appears, and, above all, by the difference in the form of its maxillary appendages. Another great peculiarity, not mentioned in the description, is the existence of two bags, analogous to the caruncles of the prothorax of *Malachius*. These bags issue from the sides of the second segment of the abdomen, within the *pulmonaria* and under the *spiracula dorsalia*; and being capable of considerable distention, they seem to be composed of one lobe only. During life the abdomen is much longer than the elytra, but it contracts much in drying. Neither this nor the next species live upon prey. They are both always found feeding on flowers, live long, and many, when about to die, grasp with their mandibles the petal of a flower, and may be found dried up in that state.

## II. *Chauliognathus bimaculatus*.

Black; thorax testaceous, with a spot black; elytra testaceous, with an elongated spot near the apex black.

Length (in a dried state) from 9-20ths to 11-20ths of an inch.

Inhabits Pennsylvania and North Carolina, where it appears in September and lives throughout October.

*Cantharis bimaculata*. Fab. Eleut. I. 298.

*Description.*—Head black; antennæ black; palpi black; mandibles ferruginous, piceous at tip; labium ferruginous; thorax testaceous, margined, subtransverse, slightly broader at base with a central spot black; elytra testaceous, slightly narrower at tip, with a spot or band covering about one half of each elytron, beginning near the apex black, a subobsolete elevated line near the suture, and diverging towards the humerus; beneath piceous, edge of segments of the abdomen testaceous; feet blackish; tibiæ of the anterior pair of legs

piceous, covered with rufous hairs, those of the second and third pair with shorter and thinner hairs of the same colour.

*Observations.*—This insect is one of the last to appear, and that in profusion, about the same time with *Lytta atrata*, till repeated frosts deprive it of food. The black spot on the thorax varies much; it is usually subquadrate, but is sometimes transverse, and sometimes longitudinal, but most commonly indented at base as represented in Fig. II. I observed this insect about ten years ago in the month of August; it was found on the blossom of thistles, where I had an opportunity to see it protrude its maxillary appendage as the antriæ of Lepidopterous insects. In this insect, as well as in the preceding, the abdomen extends at least three segments beyond the elytra, during life.

The next insects in which I have observed a peculiar formation of the maxillæ, all belong to the family *Mordellonæ*, namely *Rhipiphorus dimidiatus*, *R. limbatus*, and *R. tristis*. The remarkable elongation of the upper lobe of the maxillæ, which is greater than at least in one species of *Nemognatha*, and other considerations have induced me to propose the establishment of the following genus, taking *R. dimidiatus* for its type, and adding to it the two other species just mentioned.

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## FAMILY MORDELLONÆ.

### GENUS MACROSIAGON.

*Rhipiphorus*, Bosc. Fab. &c.

Tarsi with all their joints simple; palpi subfiliform; antennæ pectinated; maxillæ with the upper lobe filiform, longer than the palpi; scutellum not apparent; abdomen abruptly truncated; elytra dehiscent, longer than the abdomen. See Fig. III. *a*, *b*, *c*, *d*.

*Observations.*—It is strange that a peculiarity belonging to three species, all known to Fabricius, should have escaped his notice. As the genus *Rhipiphorus* is now large, I think it is well to make a division, which is so natural and easily observed. All these insects live on flowers, and are very quick in their motions.

*Explanation of the Plate.*

Fig. I. *Chauliognathus marginatus* (*Cantharis marginata*? F.).

- a.* mandible.
- b.* maxilla in a dried state.
- c.* labium and lingua.
- d.* labrum.
- e.* maxilla in a recent state, with its protruding appendage.
- f.* caruncles, or ventral bags.

Fig. II. *Chauliognathus bimaculatus* (*Cantharis bimaculata*, F.).

- a.* mandible.
- b.* maxilla when dried.
- c.* labium and lingua.
- d.* labrum.
- e.* maxilla in a recent state, with its protruding appendage.

Fig. III. *Macrosiagon dimidiatum* (*Rhipiphorus dimidiatus*, F.).

- a. b. c. d.* trophi.\*

\* This paper was read before the Society September 19th, 1828.

